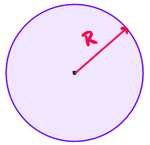
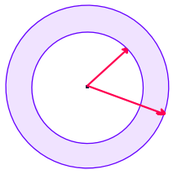
ÁREAS CIRCULARES

CÍRCULO



$$A = \pi R^2$$

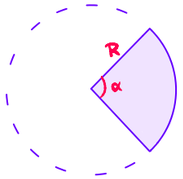
COROA CIRCULAR



$$A = \pi (R^2 - r^2)$$

$R = 5\ m$
$r = 4\ m$
$A = \pi . (5^2 - 4^2) = 9\pi\ m^2$

SETOR CIRCULAR

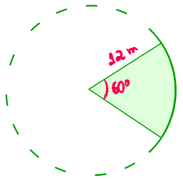


$$A_{SET} = \frac{\alpha}{360} . \pi R^2$$

ÂNG	ÁREA
360°	πR^2
α	A

$360\ A = \alpha \pi R^2$

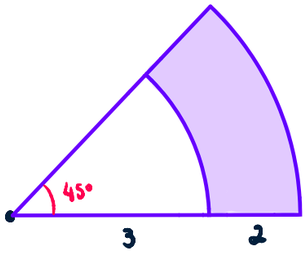
$A = \frac{\alpha}{360} \pi R^2$



$A_{SET} = \frac{60^{1}}{360} . \pi\ 12^2$

$= \frac{\pi . 12 . 12^{2}}{6}$

$A_{SET} = 24\pi\ m^2$

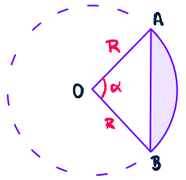


$A = \frac{45}{360^\circ} A_{COROA} = \frac{1}{8} \pi (5^2 - 3^2)$

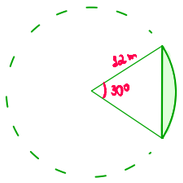
$= \frac{\pi}{8} . 16$

$A = 2\pi\ m^2$

SEGMENTO CIRCULAR



$A_{SEG} = A_{SET} - A_{\Delta}$ (→ $\frac{1}{2} R^2 \sin\alpha$)

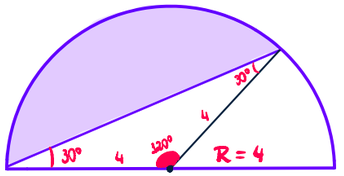


$A_{SEG}_{30^\circ} = A_{SET}_{30^\circ} - A_{\Delta}_{30^\circ}$

$= \frac{1}{\cancel{360}^{12}} . \pi . 12^2 - \frac{1}{2} . \overset{6}{\cancel{12}} . 12 . \sin 30^\circ$

$= \frac{\pi . 12 . \cancel{12}}{\cancel{12}} - 6 . 12 . \frac{1}{2}$

$= 12\pi - 36\ m^2$

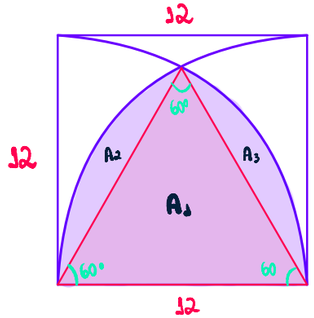


$A_{SEG}_{120^\circ} = A_{SETOR}_{120^\circ} - A_{\Delta}_{120^\circ}$

$= \frac{120}{360} . \pi . 4^2 - \frac{1}{2} . 4^2 . \sin 120^\circ$

$= \frac{16\pi}{3} - 8 . \frac{\sqrt{3}}{2}$

$A_{SEG}_{120^\circ} = \frac{16\pi}{3} - 4\sqrt{3}$



$A_2 = A_3 = A_{SEG}(60^\circ)$

$A = A_{\Delta}_{60^\circ} + 2 A_{SEG}_{60^\circ}$

$= A_{\Delta}_{60^\circ} + 2 (A_{SET}_{60} - A_{\Delta}_{60^\circ})$

$= A_{\Delta 60^\circ} + 2 A_{SET}_{60^\circ} - 2 A_{\Delta}_{60^\circ}$

$= 2 . A_{SET}_{60^\circ} - A_{\Delta 60^\circ}$

$= \cancel{2} . \frac{60}{\cancel{360}_{3\ 6}} . \pi . 12^2 - \frac{1}{2} . 12^2 . \frac{\sqrt{3}}{2}$

$= 48\pi - 36\sqrt{3} = 12(4\pi - 3\sqrt{3})\ m^2$

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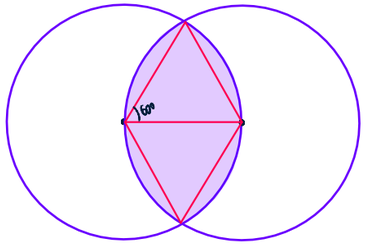
A figura mostra duas circunferências de raio 6, cada uma delas passando pelo centro da outra. Calcule o valor da área hachurada.

a) $2(4\pi - 3\sqrt{3})$
b) $4(4\pi - 3\sqrt{3})$
c) $2(2\pi - \sqrt{3})$
d) $4(2\pi - \sqrt{3})$
e) $3\pi - \sqrt{3}$



$A = 2 A_{\Delta} + 4 A_{SEG\ 60}$

$= 2 A_{\Delta 60} + 4 (A_{SET}_{60^\circ} - A_{\Delta 60^\circ})$

$= 4 A_{SET.\ 60} - 2 A_{\Delta 60^\circ}$

$= 4 . \frac{\cancel{60}}{\cancel{360}_{6}} . \pi\ \overset{2}{\cancel{6}} - 2 . \frac{6^2 \sqrt{3}}{4}$

$= 24\pi - 18\sqrt{3}$

$= 6 (4\pi - 3\sqrt{3})$

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